

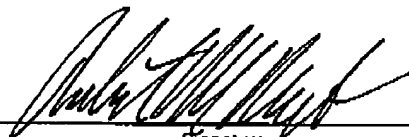
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PRE-APPEAL BRIEF REQUEST FOR REVIEW		Docket Number (Optional)	
		5649-909	
I hereby certify that this correspondence is being facsimile transmitted to the U.S. Patent and Trademark Office via facsimile number 571-273-8300 on March 3, 2006.  Signature <u>Candi L. Riggs</u>  Typed or printed name <u>Candi L. Riggs</u>		Application Number	Filed
		09/995,421	11/27/01
		First Named Inventor	
		Won-young Chung	
		Art Unit	Examiner
		2128	K. K. Gebresilassie
Applicant requests review of the final rejection in the above-identified application. No amendments are being filed with this request.			
This request is being filed with a notice of appeal.			
The review is requested for the reason(s) stated on the attached sheet(s). Note: No more than five (5) pages may be provided.			
I am the			
<input type="checkbox"/> applicant/inventor.		Signature	
<input type="checkbox"/> assignee of record of the entire interest. See 37 CFR 3.71. Statement under 37 CFR 3.73(b) is enclosed. (Form PTO/SB/98)		Robert M. Meeks	
<input checked="" type="checkbox"/> attorney or agent of record.		Typed or printed name	
Registration number <u>40,723</u>		919/854-1400	
		Telephone number	
<input type="checkbox"/> attorney or agent acting under 37 CFR 1.34.		March 3, 2006	
Registration number if acting under 37 CFR 1.34 _____		Date	
NOTE: Signatures of all the inventors or assignees of record of the entire interest or their representative(s) are required. Submit multiple forms if more than one signature is required, see below".			
<input checked="" type="checkbox"/> *Total of <u>1</u> forms are submitted.			

This collection of information is required by 35 U.S.C. 132. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11, 1.14 and 41.6. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Mail Stop AF, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

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RESPONSE UNDER 37 C.F.R. 1.116  
EXPEDITED PROCEDURE  
EXAMINING GROUP 2128

Attorney Docket No.: 5649-909

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re: Won-young Chung et al.

Group Art Unit: 2128

Serial No.: 09/995,421

Examiner: Kibrom K. Gebresilassie

Filed: November 27, 2001

Confirmation No.: 1882

For: METHODS, APPARATUS AND COMPUTER PROGRAM PRODUCTS FOR  
SIMULATING PLASMA BEHAVIOR IN A PLASMA REACTOR APPARATUS  
USING TWO-DIMENSIONAL CROSS-SECTION COMPUTATIONS

Date: March 3, 2006

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**REASONS IN SUPPORT OF APPLICANTS' PRE-APPEAL  
BRIEF REQUEST FOR REVIEW**

Sir:

This document is submitted in support of the Pre-Appeal Brief Request for Review filed concurrently with (1) a Notice of Appeal in compliance with 37 C.F.R. 41.31 and with the rules set out in the OG of July 12, 2005 for the Appeal Brief Conference Pilot Program and (2) an Amendment correcting a minor typographic error in the specification.

No fee or extension of time is believed due for this request other than those submitted with the petition for extension of time filed concurrently herewith. However, if any further fee or extension of time for this request is required, Applicant requests that this be considered a petition therefor. The Commissioner is hereby authorized to charge any additional fee, which may be required, or credit any refund, to our Deposit Account No. 50-0220.

**REMARKS**

Applicants hereby request a Pre-Appeal Brief Review (hereinafter "Request") of the claims finally rejected in the Final Office Action mailed December 16, 2005 (herein after "Final Action"). The Request is provided herewith in accordance with the rules set out in the OG dated July 12, 2005.

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Claims 1-35 are pending in this application. Claims 1-35 stand rejected under 35 U.S.C. § 103 as being unpatentable over a combination of "Two-Dimensional Self-Consistent Radio Frequency Plasma Simulations Relevant to the Gaseous Electronics Conference RF Reference Cell" by Lymberopoulos and Economou (hereinafter "Lymberopoulos"), U.S. Patent No. 6,014,943 to Arami (hereinafter "Arami") and Applicants' alleged Admitted Prior Art (hereinafter "APA"). See Final Action, p. 6.<sup>1</sup> In particular, referring to the rejection of Claim 1, the Final Action cites Lymberopoulos as teaching all of the recitations of Claim 1, except "a reaction chamber of a plasma reactor including a plurality of magnets that move with respect to the reaction chamber." Final Action, p. 7. The Final Action cites Arami as providing the missing teachings, asserting as a motivation for combining these references that it "would have been more convenient for generating a magnetic field having a magnetic line of force in the plasma generating area, so that the plasma of the process gas is generated in the plasma generating area." The Final Action does not appear to cite APA for any particular teaching vis a vis Claim 1. Applicants respectfully submit that the Final Action makes a clear factual error in its interpretation of Lymberopoulos, and has failed to construct a *prima facie* case of obviousness under 35 U.S.C. §103.

The Final Action cites the first paragraph of the section of Lymberopoulos entitled "Problem Statement" (p. 475) and the second paragraph of the section of Lymberopoulos entitled "Summary and Outlook" (p. 492) as teaching "computing plasma characteristics for each of a plurality of cross-sections." See Final Action, p. 6. The Final Action cites the first paragraph of the section of Lymberopoulos entitled "Plasma Simulation" (p. 475), the first paragraph of the "Problem Statement Section" (p. 475) and the second paragraph of the "Summary and Outlook" section (p. 492) as teaching "generating a generalized model of the plasma from the computed plasma characteristics for the plurality of cross-sections." See Final Action, p. 6.

This is a clearly erroneous characterization of Lymberopoulos. The cited lines 1-10 of the "Problem Statement" merely indicate that, for the GEC reference cells shown in FIGs. 1a and 1b, it is desirable to determine a number of parameters, including space and time variation of electron, ion and neutral species densities and velocities, flux and energy distributions for ions and neutrals, power deposited into plasma, and potential and current

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<sup>1</sup> Applicants note that there is an error in identifying the rejected claims on page 6 of the Final Action.

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distributions. The cited portion of the "Summary and Outlook" merely refers to "lack of knowledge of cross sections." Contrary to the assertions of the Final Action, these passages simply do not disclose or suggest "computing plasma characteristics for each of a plurality of cross-sections of the reaction chamber," as recited in Claim 1.

The portions of "Plasma Simulation," "Problem Statement Section" and "Summary and Outlook" cited as allegedly teaching "generating a generalized model of the plasma from the computed plasma characteristics for the plurality of cross-sections" are similarly inapposite. The "Plasma Simulation" passage merely says that modeling and simulation of glow discharge plasmas is a tool for understanding physiochemical processes in plasma. The portions from "Problem Statement" and "Summary and Outlook," discussed above, have nothing to do with "generating a generalized model of the plasma from the computed plasma characteristics for the plurality of cross-sections." Accordingly, at least the two above-described allegations made in the rejection of Claim 1 are clearly factually erroneous.

The grounds presented for combining Lymberopoulos and Arami are also clearly erroneous. In particular, the Final Action asserts as a motivation for combining the references that it "would have been more convenient for generating a magnetic field having a magnetic line of force in the plasma generating area, so that the plasma of the process gas is generated in the plasma generating area." There is no evidence cited from prior art for this particular proposition and, even there were such evidence, this proposition appears to have little or no relevance as to why one skilled in the art would combine Lymberopoulos and Arami. As noted in Applicants' Amendment of October 6, 2005 (hereinafter "First Amendment"), Lymberopoulos describes simulations for a reference cell that appears to be a different type of reactor than the dipole ring magnet plasma reactor described in Arami, and there is no discussion in the Final Action or the references of any relationship between plasma behavior in these different types of devices or how or why simulation techniques used in one type of reactor would be applicable to the other type of reactor.

For at least these reasons, Applicants submit that the rejection of independent Claim 1 is clearly erroneous. Applicants submit that the rejections of Claims 10 and 19 are clearly erroneous for similar reasons, as these rejections rely on the same basis as the rejection of Claim 1. See Final Action, p. 9.

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Applicants submit that the rejections of independent Claims 28 and 32 are also clearly erroneous. The Final Action cites Lymberopoulos as teaching all of the elements of Claim 28 except the type of reactor, which the Final Action attributes to Arami, and "3-dimensionally computing static magnetic fields induced by the permanent magnets," a teaching the Final Action allegedly finds in APA. Final Action, p. 11. This latter assertion is deficient on its face for supporting a rejecting under § 103, as the cited portion of the Present Application (page 6, lines 27-31) relating to computing static magnetic fields as part of operations for simulation plasma behavior in a plasma reactor *comes from a description of embodiments of the present invention*, not from admitted prior art. Contrary to the assertions on pages 4 and 5 of the Final Action, the issue is not whether computation of 3-dimensional fields is known, but whether the prior art teaches or suggests the use of such techniques *in the manner claimed*.

In addition, the asserted reasons for combining Lymberopoulos and Arami (see Final Action, p. 12) are substantially the same as those asserted for the rejection of Claim 1, and are clearly erroneous for at least the same reasons. Moreover, the alleged motivation to combine says nothing about APA and, thus, is facially deficient. For at least these reasons, the rejection of Claim 28 is clearly erroneous. For at least similar reasons, the rejection of Claim 32 is also clearly erroneous, as it relies upon the same basis as the rejection of Claim 28.

**The dependent claims are patentable**

Applicants submit that the dependent claims are patentable at least by virtue of the patentability of the various ones of independent Claims 1, 10, 19, 28 and 32 from which they depend. Applicants further submit that several of the dependent claims are separately patentable. Applicants defer further discussion of the independent bases for patentability of the dependent claims until filing of an appeal brief, should that be necessary.

**The objection to Table 1 has been corrected**

An amendment correcting Table 1 on page 15 has been submitted concurrently herewith. Applicants submit this amendment overcomes the remaining objection to the specification asserted on page 2 of the Final Action. Applicants note that the concurrent filing of this amendment appears to conform with the guidelines for the Pre-Appeal Brief Conference Pilot program outlined in the OG of July 12, 2005, as this filing does not occur

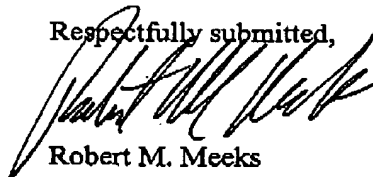
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"after" the filing of the Pre-Appeal Brief Request for Review. Applicants further note that the amendment only corrects a typographical error in the specification and does not affect the pending claims. Applicants therefore request entry of this amendment before the Pre-Appeal Brief Review Conference.

### Conclusion

As discussed above, there are clear errors of fact and law in the Final Action and, therefore, Applicants respectfully request that the present application be reviewed and the rejections of Claims 1-35 be reversed by the appeal conference prior to the filing of an appeal brief.

Respectfully submitted,

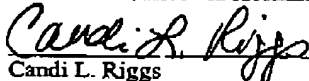


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### CERTIFICATION OF FACSIMILE TRANSMISSION UNDER 37 CFR § 1.8

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Candi L. Riggs